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ABSTRACT

This study examined the development of cognitive perspective taking skills and the lack of consistency across perspective taking measures in earlier studies. Four perspective taking measures were administered to 56 children between 4 and 10 years of age under two testing conditions. The high structure condition included multiple presentation of the task to the child, clear task definition, high task salience, clarity of response options, and demonstration of the task. The low structure condition did not include these elements. The correlations between perspective taking tasks in the high structure assessment were higher than the correlations between tasks in the low structure assessment. All measures were related to age and verbal mental age, that is, IQ divided by chronological age. IQ was not related to performance in either condition. These results warranted four conclusions: (1) Cognitive perspective taking is related to age; (2) Different perspective taking skills develop in similar ways; (3) The different contents of perspective taking develop in a manner consistent with a general model of skill development; and (4) The lack of control of task and testing conditions, rather than a lack of coherence of the cognitive perspective taking construct, caused the absence of convergence of measures found in earlier studies. (BC)

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ACCOUNTING FOR CORRELATIONS ACROSS MEASURES OF PERSPECTIVE TAKING

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Abstract

Cogntitive perspective taking measures that do not correlate well may have been poorly constructed for the purposes of demonstrating convergence. The Feffer Role Taking Task (1959), Chandler Role Taking Task (1971), and two perspective taking measures constructed according to principles of skill theory (Fischer, 1980) were administered under traditional conditions (less structured) in order to replicate the prior lack of convergence and under more structured conditions to demonstrate the utility of controlling task and testing factors. As predicted, the correlations between perspective taking tasks in the high support assessment conditions were moderately high, ranging from $r = .63$ to .77, $p < .001$. Also as predicted, the correlations were lower in the low support assessment conditions, ranging from $r = .17$ to .46, with $r = .61$, $p < .001$ between the two skill theory measures. Comparison of structural equation models supported the role of task and testing factors as predictors of perspective taking level over age alone or age and IQ or age and verbal mental ability. It was concluded that lack of control of task and testing conditions produced the prior lack of convergence rather than a lack of coherence of the cognitive perspective taking construct.

Aims

The goals of this study were:

(a) to provide an account of development of perspective taking skills using developmentally sensitive measures; and

(b) to focus on the convergence of the perspective taking measures in terms of task and testing factors that when attended to, should account for the prior lack of consistency in results across several cognitive perspective taking measures (Ford, 1979; Higgins, 1981).

These measures may have been poorly constructed for the purposes of demonstrating convergence. The measures in this study were administered under traditional conditions (less structured) in order to replicate the prior lack of convergence and under more structured conditions to demonstrate the utility of controlling task and testing factors.

Methods and Subjects

PS 020120

Fifty-six children between 4 and 10 years of age were tested in two sessions. Four perspective taking measures, the Feffer Role Taking Task (1959), the Chandler Role Taking Task (1972), and two measures constructed according to principles of skill theory (Fischer, 1980), the Self-Other Perspective Taking Sequence and the Inside-Outside Perspective Taking Sequence were administered in 2 testing conditions.

For the highly structured assessment condition, children were given a sequence of 5 stories illustrating hierarchically related assessments of relations between self and other in the Self-Other measure and the relations between inner mental states and outer behavior in the Inside-Outside measure. The original Feffer and Chandler measures were reformulated into 5 step developmental sequences (according to the assessment principles of skill theory) that constituted the highly structured assessment condition (see tables 1 & 2).

For the low structure assessment condition, the Feffer and Chandler measures were administered according to the original instructions. A simple request to make up stories like the ones just seen comprised the less structured condition of the Self-Other and Inside-Outside measures.

Other measures: The vocabulary subtest of the WISC-R and the WPPSE were administered, along with a measurement of height.

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Results

The measures formulated on the basis of skill theory assessment principles were found to be scalable as Guttman sequences according to Green's (1956) Index of Reproducibility and all perspective taking measures were reliably scorable.

As predicted, the correlations between perspective taking tasks in the high support assessment conditions were moderately high, ranging from $r = .63$ to .77, $p < .001$. Also as predicted, the correlations were lower in the low support assessment conditions, ranging from $r = .17$ to .46, with $r = .61$, $p < .001$ between the two skill theory measures (see table 3).

Correlations between the two versions of each measure were moderate, $r = .34$ to .60, as expected. With age partialed out, the pattern of results remained somewhat similar, although the size of correlations was attenuated (table 4). Mean age of passing each developmental step in the high support assessment conditions are shown in table 5.

All measures were moderately related to age, verbal mental age (IQ divided by chronogical age) and height, ranging between $r = .69$ to .79, $p < .001$ in the high support conditions and $r = .38$ to .72, $p < .001$ in the low support conditions. IQ was unrelated to perspective taking performance, $r = -.10$ to .03 in both assessment conditions (see table 3). Structural equation models showed assessment factors (figures 1 & 2) were more likely (χ^2 (19) = 19.78, $p = .41$ and χ^2 (14) = 19.44, $p = .15$) to account for perspective taking performance than age and IQ or age and verbal mental ability (the verbal portion of the WISC or WPPSE) (χ^2 (29) = 64, $p = .001$ and χ^2 (29) = 152, $p = .001$).

Conclusions

Four conclusions were drawn.

First, cognitive perspective taking is an age-related set of skills which develops through an internally consistent, logical and orderly differentiation and integration of skill components.

Second, different cognitive perspective taking skills develop in similar ways.

Third, the ages at which the steps of the highly structured measures were commonly passed offers a model of how four different contents of perspective taking develop consistent with a general model of skill development (Fischer, 1980).

Fourth, the prior low correlations among tasks with more variation in task and testing factors was replicated, while the highly structured conditions yielded moderately high correlations among measures, furnishing evidence that it was the lack of control of task and testing conditions that produced the prior lack of convergence rather than a lack of coherence of the cognitive perspective taking construct. Method variance needs to be built into our assessment and theoretical systems (Campbell & Fiske, 1959; Fischer & Pipp, 1984).

These conclusions contrast with a commonly accepted view that cognitive perspective taking itself lacks coherence as a construct (Enright & Lapsley, 1980; Higgins, 1981; Kurdek, 1978; Turiel, 1983; Ford, 1979, 1985).

The preceding is the text of a poster presented at the convention of the Society for Research in Child Development, April, 1991, Seattle, WA. An expanded article is in preparation for submission, and the fuller version of that article and/or the tasks and/or detailed task administration and scoring manuals will be sent on request. Write: Samuel P. Rose, 1934 South University Blvd, Denver, CO 80210-4210.

Table 1.

Variations in Environmental Support

	High Scaffolding	Low Scaffolding
amount of task exposure	child sees the task several times	child is not exposed to the before performing it
task definition	end state or goal of task is clearly defined	goal is not clearly defined
task salience	task stands out from other possible tasks	task is not easily distinguishable from other possible tasks
task structure	relations between elements of task are clearly specified	relations between elements are not clearly specified
language demands	concrete referents contextualize verbal descriptions	high language demands with no auxilliary support
clarity of response options	response categories are clear	response categories are not clearly defined by task
materials	task materials focus attention on elements of task	task materials do not focus attention on elements of task
demonstration of task	passing performance for the task is demonstrated	child does not see a passing performance of task
priming of task components	followup questions prime components of passing answer	components of passing answer are not primed by modular questions

Task 2.

Self - Other Skill Theory Perspective Taking Task Sequence

Step 3

Representations II (representational mappings) — Self - Other

action #1		action #2
builds walls		builds doorway
Self	———	Friend

Integration: Friend and self are building a different part of the same building, friend is building the doorway and self is building the walls.

Step 4

Representations II Compound Mappings — Self - Other

action #1		action #2		action #3
(draws bridge)		(draws car)		(draws road)
Self	———	Friend #1	———	Friend #2

Integration: Friend #1 and Friend #2 and Self are drawing a different part of the same picture: Friend #1 is drawing a car, Friend #2 is drawing a road for the car and Self is drawing a bridge for the car and road.

Step 5

Representations III (representational systems) — Self - Other

acts #1 (good)		acts #2 (did not finish work)
Self	<——>	Friend
does #1		does #2
(go to playground)		(stay in classroom)

Integration: Friend and self can't be together now because of what they did before: Friend has to stay in classroom now because she/he acted bad before, and Self goes to the playground now, because she/he acted good in class before.

Step 6

Representations III Compound — Self - Other

acted #1		acted #2		acted #3
(good)		(bad)		(didn't finish work)
Self	<——>	Friend #2	<——>	Friend #1
does # 1		does #2		does #3
(goes to playground)		(goes to principal)		(stay in classroom)

Integration: Friends #1 and #2 and self can't be together now because of what they did before: Friend #1 has to stay in the classroom now because she/he didn't finish work before, Friend #2 has to go to the principal's office now because s/he acted really bad before and Self goes to the playground now, because s/he acted good in class before.

Step 7

Representations IV/Abstractions I (single abstractions) — Self - Other

acts #1	acts #2		acts #3	acts #4
(good)	(bad)		(not study)	(studies)
Self <—>	Friend	<——>	Self <—>	Friend
does # 1	does #2		does #3	does #4
(playground)	(stays in classroom)		(poorly on test)	(well on test)

When people start out doing different things, they'll end up doing different things.

Integration: This story shows how people can end up doing different things when they start out doing different things. Friend and Self end up with different things when Friend has to stay in the classroom now and Self goes to the playground because they started out doing different things, Friend acted bad before and Self was good before. Friend and Self also ended up with different things when Friend got a good grade on a test and Self got a bad grade because they started out doing different things, Friend studied hard & Self didn't study at all.

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Inside - Outside Perspective Taking Task Sequence

Step

Representations II (representational mappings) — Inside - Outside

desire		action
to be nice		picks up crayons
the Friend	———	the Friend

Integration: Friend wants to help somebody, so that's why she/he goes over and picks up the crayons for him.

Step 4

Representations II Compound — Inside - Outside

motivation		action		feeling
like Self		helps: picks up spilled papers		happy/appreciative
Friend # 1	——	Friend #1	——	Self

Integration: Friend #1 picked up Self's papers from the floor because Friend #1 liked Self, and that made Self feel happy (when Friend #1 picked up the papers).

Step

Representations III (representational systems) — Inside - Outside

category 1: difference	reason to help # 1	reason to help #2
	wants to get candy	wants to be nice
	Friend <——>	Self
category 2: similarity	action #1	action #2
	helps pick up puzzle pieces	helps other person into chair

Integration: Friend and Self both help the other student even though they each want different things. Friend and Self both helped when Friend picked up puzzle pieces and Self, helped him into his chair, which both ways of helping the other kid, and Friend and Self each wanted different things when Friend wanted some candy and Self wanted be nice.

Step

Representations III Compound — Inside - Outside

desire # 1		desire # 2		desire # 3
didn't want to do school work		wanted to help teacher		wants to be with friends
Friend #1	<——>	Self	<——>	Friend #2
action #1		action # 2		action #3
helps teacher: carries books		helps teacher: carries television		helps teacher: moves a box

Integration: Friend #1 and Friend #2 and Self all helped the teacher, by moving a box, carrying books and carrying a TV, which is a similar thing, even though they each wanted three different things: Friend #1 wanted to avoid doing work, Friend#2 wanted to be with his/her friends, and Self wanted to be nice and help the teacher.

Step

Representations IV/Abstractions I (single abstractions) — Inside - Outside

desire #1	desire #2		desire #3	desire #4
wants to be nice	wants to get candy		wants to watch TV	wants to get good grade
Self <——>	Friend	<——>	Self <——>	Friend
action #1	action #2		action #3	action #4
helps kid into chair	helps pick up puzzle pieces		studies hard for math test	studies hard for social studies test

People can have different reasons for doing a similar thing

Integration: This story shows the general rule that people can do something similar even when they want different things. Friend and Self are both doing something similar when Friend studies hard for a social studies test and Self studies hard for a math test, but each wants different things: Friend wants a good grade, and Self wants to watch TV. They also both do something similar when they help another student, Friend picks up the puzzle pieces and Self helps him into his chair, but each wants different things: Friend wants some candy and Self wants to be nice.

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Table 3.

Correlations Between Perspective Taking Measures

As a Function of Assessment Condition

	Low Support Assessment Condition			High Support Assessment Condition		
	Feffer	Chandler	S/O:I/O	Feffer	Chandler	S/O:I/O
Low Support						
Feffer						
Chandler	.17					
Self-Other	.45**	.28*				
Inside-Outside	.46**	.36*	.61**			
High Support						
Feffer	.50**					
Chandler		.34**		.78**		
Self-Other			.40**	.63**	.72**	
Inside-Outside			.60**	.66**	.71**	.77*
Age	.57**	.43**	.61**/.72**	.73**	.73**	.74**/.79**
MA	.54**	.44**	.60**/.72**	.73**	.69**	.72**/.75**
IQ	-.02	-.07	-.10 /-.07	.03	-.10	-.06/-.06

* = $p < .05$ ** = $p < .01$

Note. This table shows that the correlations between perspective taking tasks in the low support assessment conditions ranged between $r = .17$ and .46, with one correlation of $r = .61$ between the two skill theory measures. The correlations between perspective taking tasks in the high support conditions ranged between $r = .63$ and .78. The correlations between the high and low support assessment conditions of the same task ranged between $r = .34$ and .60. Correlations with age, verbal mental age and IQ are also shown.

Table 4.

Correlations Between Perspective Taking Measures

As a Function of Assessment Condition with Age Partialed Out

	Low Support Assessment Condition			High Support Assessment Condition		
	Feffer	Chandler	S/O:I/O	Feffer	Chandler	S/O:I/O
Low Support						
Feffer						
Chandler		-.10				
Self-Other	.42*	-.15				
Inside-Outside	.24	.10	.21*			
High Support						
Feffer	.19					
Chandler		.04		.33*		
Self-Other			-.02	.07	.10	
and Inside-Outside			.12	.18	.39*	.69**
IQ	.18	-.05	-.06/.13	.35*	-.11	.11/.01

Note. This table shows that the correlations between perspective taking tasks in the low support assessment conditions ranged between r = -.10 and .24, with one correlation of r = .42. The correlations between perspective taking tasks in the high support conditions ranged between r = .07 and .39, with one correlation of r = .69. The correlations between the high and low support assessment conditions of the same task ranged between r = -.02 and .19. Correlations with IQ are also shown.

Table 5.

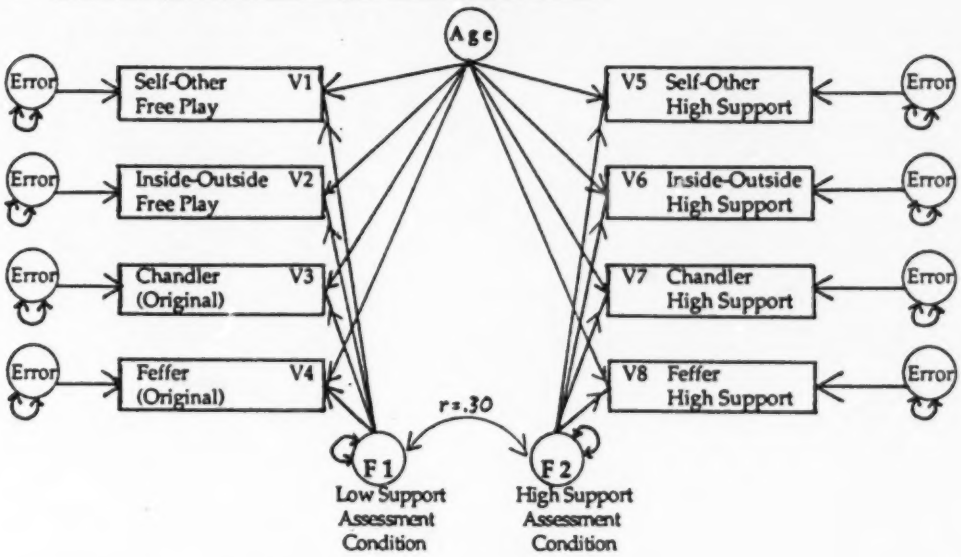
Average Age for Highest Level Passed for

4 High Scaffolding Perspective Taking Measures

Developmental Step		Self-Other (Skill Theory)	Inside-Outside Skill Theory)	Privileged Information (Chandler)	Social Decentering (Feffer)	Mean Age
0	Fail all steps	4.16	—	—	—	4.16
	number of subjects	1				
3	Representations 2	—	—	—	4.74	4.74
	number of subjects				4	
4	Rep 2 Compound	5.52	5.35	4.87	4.98	5.28
	number of subjects	15	15	6	7	
5	Representations 3	6.48	6.73	5.37	5.38	6.02
	number of subjects	6	8	10	3	
6	Rep 3 Compound	8.16	7.99	8.03	7.95	8.03
	number of subjects	25	22	28	29	
7	Single Abstractions	9.89	9.93	9.26	9.12	9.51
	number of subjects	9	11	12	13	

Figure 1. Structural Equation Models for Age and Assessment Condition, and Age and Assessment Method

a. Structural Equation Model: Age and Assessment Condition



b. Structural Equation Model: Age and Assessment Method

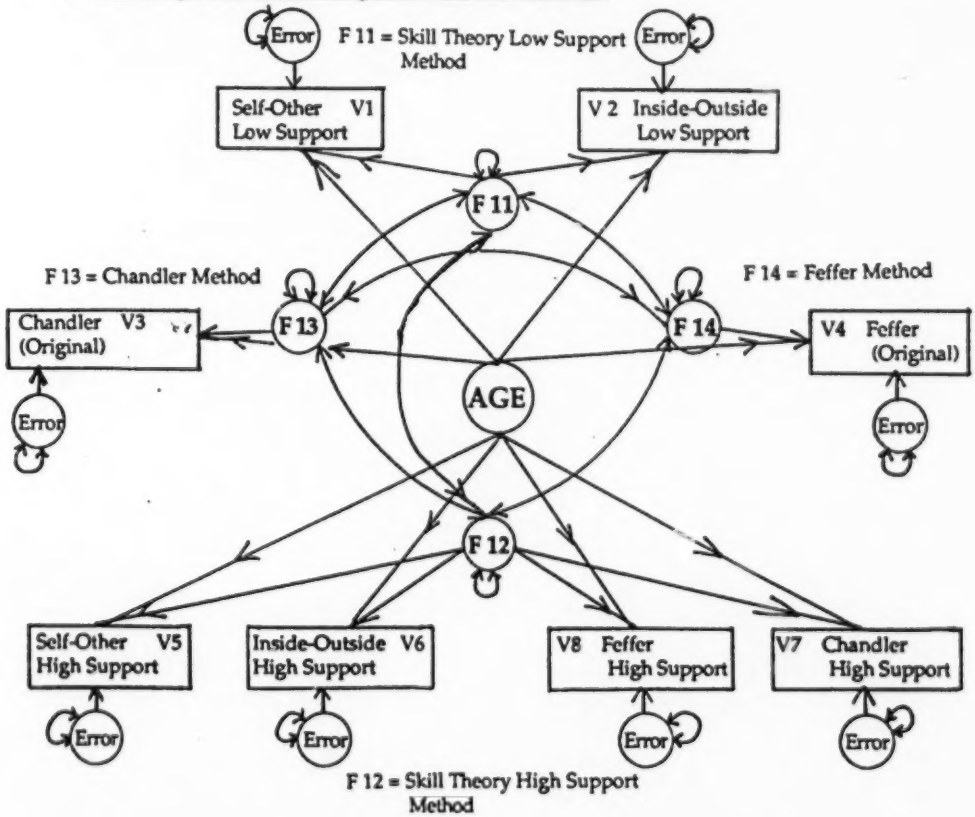


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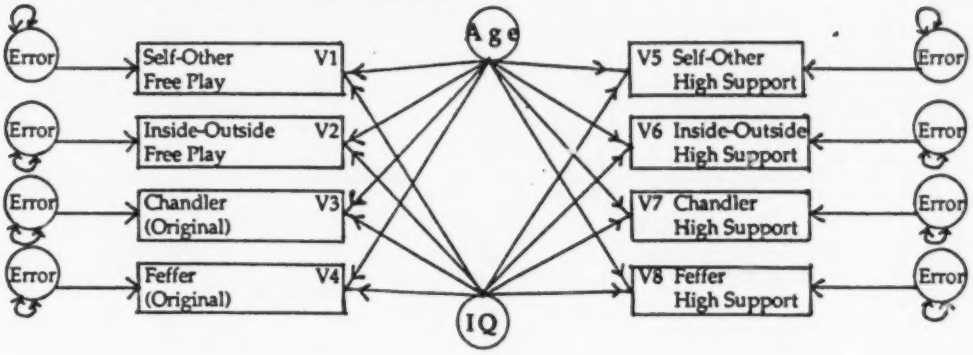
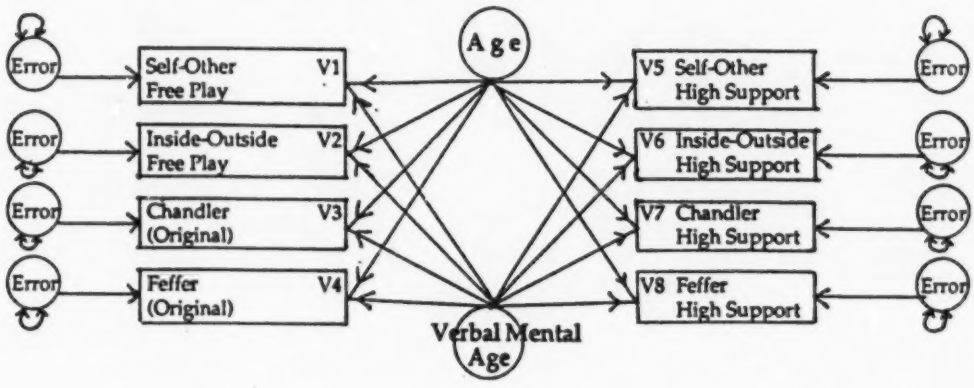
Figure 2. Structural Equation Models for Age with IQ, Verbal Mental Age

a. Structural Equation Model: Age and IQ



b. Structural Equation Model: Age and Verbal Mental Age



(Feffer Task)

Social Decentering Skill Theory Perspective Taking Measure

This measure is unusual in that the contents of the stories are made up by the child, and the experimenter fits them into the structures of relations shown here. Sample stories follow.

Step 3

Representations II — Social Decentering

likes the report card		likes the report card
daughter	----------	father

Integration: The daughter said she liked the report card and the father said he liked the report card and they are saying the same things about the card.

Step 4

Compound Representations II (compound mappings of representations) Soc. Decent.

likes the report card		likes the report card		does not like the report card
little girl	----------	father	----------	mother

Integration: The daughter and mother said they liked the report card, the father didn't like it, so the daughter and the mother agree and the daughter and the father disagrees with them.

Step 5

Representations III (systems of representations) — Social Decentering

says:	likes the report card	likes the report card
	daughter <----->	father
thinks:	I want to do better	thinking about work

Integration: The father says he likes the report card and the girl says she likes it, so they are saying the same thing, but they are not thinking the same thing, the girl is thinking she wants to do better next time and the father is thinking about his work the next day.

Step 6

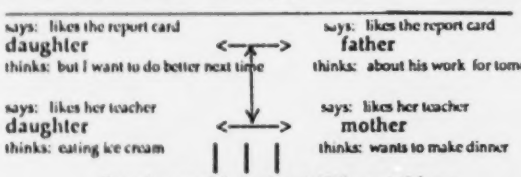
Representations III Compound (compound systems of representations) — Social Decentering

says:	likes the report card		likes the report card	does not like the card
	daughter <----->		father <----->	mother
thinks:	wants to do better		about work	wants to make dinner

Integration: The girl and her mother and father were talking about the same thing but were thinking about different things. They were all talking about the report card: the girl and the mother said they liked the report card, but the father said it was bad. But they were not all thinking about the same thing, the girl was thinking she wants to do better next time, the father was thinking about work and the mother was thinking about making dinner.

Step 7

Representations IV/Abstractions I (simple abstractions) — Social Decentering



People can think about different things even when they are talking about the same thing

Integration: This story shows a general rule about people, which is that people can think about different things even when they are talking about the same thing. First, the father and the daughter were talking about the same thing when they said they liked the report card, but they were thinking about different things, the girl was thinking about doing better next time and the father was thinking about work tomorrow. Then the girl and her mother were talking about the same thing when they said they liked her teacher, but they were thinking about different things, the girl was thinking about eating ice cream and the mother was thinking about making dinner. These two parts of the story show the general rule about people which is that people can think about different things even when they are talking about the same thing.

Privileged Information Skill Theory Perspective Taking Measure

(Chandler Task)

Step 3

Representations II (mappings between 2 representations) — Privileged Information

#1: father left on airplane		#2: didn't see
father	----------	postman

Integration: The father left on the airplane but the postman can't see it.

Step 4

Representations II Compound — Privileged Information

#1: didn't see		#2: left on airplane		#3: missed father/was sad
postman	----------	father	----------	girl

Integration: The father left on the airplane and that made the little girl sad, but the postman didn't see the father leave on the airplane.

Step 5

Representations III (systems of representations) — Privileged Information

#4: postman didn't see		#1 father leaves on airplane
postman	<----->	girl
#3: postman doesn't understand		#2 sad (because father left)

Integration: The father left on the airplane, and that made the little girl sad but the postman couldn't understand why the girl was sad because he didn't see the father leave on the airplane.

Step 6

Compounded Representations III — Privileged Information

#5: father sent toy plane		#3: postman didn't see		#1: father left
girl	<----->	postman	<----->	girl
#6: girl cries upon receipt		#4: postman doesn't understand		#2: sad at airport

Integration: The father left on the airplane and that made the little girl sad. The postman didn't know why she is sad because he didn't see the father leave on the plane. Then the father sends a toy airplane and that makes the little girl cry because it reminds her that he left. The postman doesn't know why the girl is crying when she got the plane because he didn't see the father send the plane. The postman doesn't know why the girl is sad at the airport or why she cries at home, because he didn't see the father leave on the plane and didn't see him send the toy plane.

Step 7

Representations IV/Abstractions I (single abstraction) — Privileged Information

sent airplane		didn't see father send it
toy airplane	<----->	postman
girl cries		doesn't know why girl cries
postman didn't see		father leaves on airplane
postman	<----->	girl
postman doesn't understand		sad (because father left on airplane)

____ People can't understand how
____ other people feel if they don't
____ have the information they need

Integration: This story shows a general rule about people, which is that people can't understand how somebody else feels if they don't have some of the information they need. This is shown two times in the story. The father left on the airplane and that makes the little girl sad. The postman can't understand why the little girl is sad because he didn't see something about her, he didn't see the father leave on the airplane. This shows the general rule that people can't understand how other people feel when they don't have information they need. The second time the general rule is shown is when the postman didn't understand why the little girl was sad when she got the toy airplane because he didn't know something about her, he didn't see her father send it. This also shows the rule that people can't understand how other people feel when they don't have information they need. These parts of the story show that the postman doesn't understand the little girl's feelings because he is missing information about her father that he needs. These stories show the general rule about people which is that people can't understand how others feel when they are missing information they need.